

Emile: The EventML Explorer, Phase I

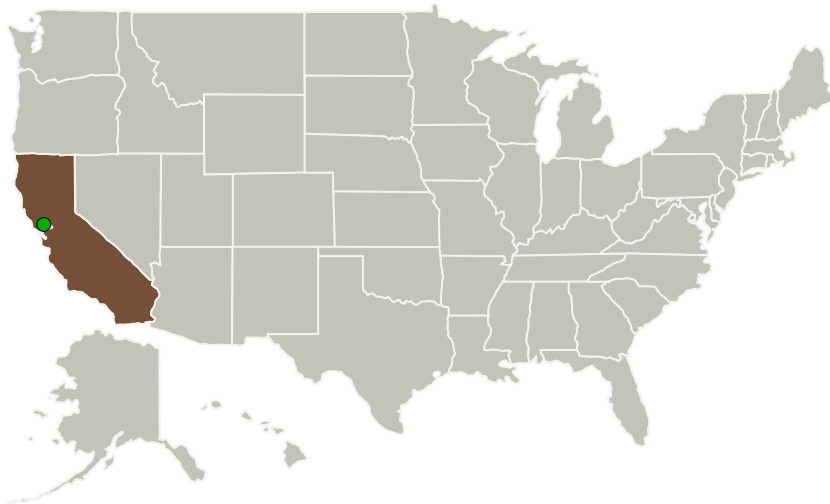
Completed Technology Project (2012 - 2012)



Project Introduction

The protocols needed to coordinate the activities of distributed components, such as consensus algorithms, are notoriously difficult to design, implement, and verify. Abstraction is the only way to gain intellectual control over this complex problem; so ATC-NY and Cornell University have developed Event Logic, a high-level model for describing and reasoning about distributed systems, and EventML, a high-level functional language for implementing distributed protocols by *ε*programming with events.^ε To integrate these conceptual tools with standard processes of system development ATC-NY will develop *ε*mile, a software tool providing: a semantic interface to EventML that translates assertions about properties of EventML programs into logical forms to which powerful existing analysis tools can be applied, along with a *ε*logical manager^ε that can direct analyses involving the interaction of these tools. We will demonstrate *ε*mile by using it to verify the key properties of EventML source code for standard consensus algorithms, such as Paxos.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
Odyssey Research Associates, Inc.	Lead Organization	Industry	Ithaca, New York
● Ames Research Center(ARC)	Supporting Organization	NASA Center	Moffett Field, California



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Primary U.S. Work Locations

California

Project Transitions



February 2012: Project Start



August 2012: Closed out

Closeout Documentation:

- Final Summary Chart(<https://techport.nasa.gov/file/140250>)

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

Odyssey Research Associates, Inc.

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Principal Investigator:

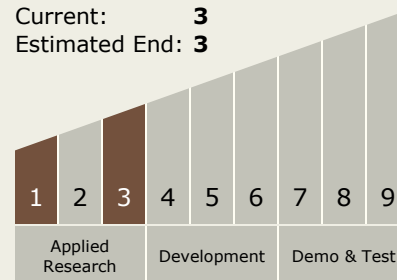
David Guaspari

Technology Maturity (TRL)

Start: **1**

Current: **3**

Estimated End: **3**



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Technology Areas

Primary:

- TX11 Software, Modeling, Simulation, and Information Processing
 - └ TX11.2 Modeling
 - └ TX11.2.2 Integrated Hardware and Software Modeling

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System